AMENDMENTS TO THE CLAIMS

1. (Currently amended) A device for focusing a charged solute comprising:

a first chamber for receiving a fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber;

a porous material separating the first and second chambers; and

means for dynamically controlling the voltage applied to the electrode array to produce a dynamically shaped local field.

2. (Original) The device of Claim 1 wherein the first and second chambers are in liquid communication when the chambers are filled with liquid.

3. (Original) The device of Claim 1 wherein the first chamber is in electrical communication with the electrode array when the chambers are filled with a conductive liquid.

4. (Original) The device of Claim 1 wherein the electrode array comprises a plurality of electrodes arranged linearly along the chamber length.

5. (Original) The device of Claim 4 wherein each electrode is individually controlled.

6-7. (Canceled)

8. (Original) The device of Claim 1 wherein the electrode array generates an electric field gradient profile.

9-16. (Canceled)

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17. (Original) The device of Claim 1 further comprising a first conduit for introducing fluid media into the first chamber and a second conduit for exiting fluid media from the first chamber.

18-46. (Canceled)

47. (Currently amended) A method for focusing a charged solute in a fluid medium comprising:

introducing a charged solute into a fluid medium, wherein the fluid medium is contained in a device comprising:

a first chamber for receiving the fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber;

a porous material separating the first and second chambers; and

means for dynamically controlling the voltage applied to the electrode array to produce a dynamically shaped field; and

applying an electric field gradient to the charged solute in the fluid medium to cause the charged solute to focus in a region of the medium.

48. (Original) The method of Claim 47 wherein the first liquid is an eluant buffer.

49. (Original) The method of Claim 47 wherein the second liquid is a coolant buffer.

50. (Original) The method of Claim 47 wherein the first liquid is the same as the second liquid.

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51. (Original) The method of Claim 47 wherein the first liquid is different from the second liquid.

52-57. (Canceled)

58. (Currently amended) ~~The method of Claim 57~~ A method for focusing a charged solute comprising:

applying a charged solute to a fluid medium;

applying a hydrodynamic force to the solute in the fluid medium; and

opposing the hydrodynamic force with an electric field gradient to provide a solute focused in the fluid medium, wherein the electric field gradient is generated by an electrode array, wherein the electric field gradient is dynamically controlled to produce a dynamically shaped field, and wherein the electrode array comprises a plurality of electrodes arranged linearly along an axis parallel to direction of migration of the charged solute in the fluid medium.

59-62. (Canceled)

63. (Currently amended) ~~The method of Claim 57~~ A method for focusing a charged solute comprising:

applying a charged solute to a fluid medium;

applying a hydrodynamic force to the solute in the fluid medium; and

opposing the hydrodynamic force with an electric field gradient to provide a solute focused in the fluid medium, wherein the electric field gradient is generated by an electrode array, wherein the electric field gradient is dynamically controlled to produce a dynamically shaped field, and wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

64-68. (Canceled)

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69. (Currently amended) ~~The method of Claim 64~~ A method for separating charged solutes comprising:

applying a mixture of charged solutes to a fluid medium;

applying a hydrodynamic force to the solutes in the fluid medium; and

opposing the hydrodynamic force with an electric field gradient to separate the charged solutes in order of their electrophoretic mobilities, wherein the electric field gradient is generated by an electrode array, wherein the electric field gradient is dynamically controlled to produce a dynamically shaped field, and wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

70. (Currently amended) A device for focusing a charged solute comprising:

a first chamber for receiving a fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber, wherein the electrode array is two-dimensional; ~~and~~

a porous material separating the first and second chambers; and

means for dynamically controlling the voltage applied to the electrode array to produce a dynamically shaped field.

71. (Currently amended) A method for focusing a charged solute in a fluid medium comprising:

introducing a charged solute into a fluid medium, wherein the fluid medium is contained in a device comprising:

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a first chamber for receiving the fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber, wherein the electrode array is two-dimensional; ~~and~~

a porous material separating the first and second chambers; and

means for dynamically controlling the voltage applied to the electrode array to produce a dynamically shaped field;

applying an electric field gradient to the charged solute in the fluid medium to cause the charged solute to focus in a region of the medium.

72. (Previously presented) A system for focusing a solute, comprising:

a device, comprising:

a first chamber for receiving the fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber; and

a porous material separating the first and second chambers;

a controller, comprising a plurality of controller units, wherein the plurality of controller units is in electrical communication with the electrode array;

at least one analytical instrument; and

an interface intermediate the device and the analytical instrument.

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73. (Previously presented) The system of Claim 72, wherein the device further comprises:

at least a third chamber comprising at least a second electrode array, the at least a third chamber having an inlet for introducing at least a second liquid to the chamber and an outlet for exiting the at least a second liquid from the chamber, wherein the at least a second electrode array comprises a plurality of electrodes; and

at least a second porous material separating the first and at least a third chambers, wherein the first porous material and the at least a second porous material are on opposite sides of the first chamber, and the electrodes in the at least a second electrode array form pairs with the electrodes in the first electrode array.

74. (Previously presented) The device of Claim 72, wherein the controller dynamically monitors and sets the voltage at each electrode in response to signals from an operator.

75. (Previously presented) The device of Claim 72, wherein the controller dynamically monitors and sets the voltage at each electrode in response to signals from the at least one analytical instrument.

76. (Previously presented) The device of Claim 72, wherein the at least one analytical instrument comprises at least one of an optical detection device and a potentiometric detection device.

77. (Previously presented) The device of Claim 72, wherein the at least one analytical instrument comprises a video camera.

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